

Rec'd PCT/PTO 27 JUN 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
29 July 2004 (29.07.2004)

PCT

(10) International Publication Number
WO 2004/062351 A3

(51) International Patent Classification⁷:
15/29, 52/82

C12N 9/10.

(21) International Application Number:
PCT/US2004/000363

(22) International Filing Date: 9 January 2004 (09.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/438,801 9 January 2003 (09.01.2003) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
12 May 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 2004/062351 A3

(54) Title: GENE ENCODING RESISTANCE TO ACETOLACTATE SYNTHASE-INHIBITING HERBICIDES

(57) Abstract: A mutant acetolactate synthase (ALS) enzyme that confers cross-resistance to all sulfonylurea, imidazolinone, pyrimidinyl oxybenzoate, triazolopyrimidine and sulfonylamino-carbonyl-triazolinone herbicides is provided. The mutant enzyme contains an aspartic acid to glutamic acid substitution mutation at a newly identified conserved region of the ALS enzyme. A gene encoding the enzyme is also provided, as are transgenic plants that have been genetically engineered to contain and express the gene. The transgenic plants are cross-resistant to sulfonylurea, imidazolinone, pyrimidinyl oxybenzoate, triazolopyrimidine and sulfonylamino-carbonyl-triazolinone herbicides.